

PATENT COOPERATION TREATY

PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)



REC'D 23 MAY 2006

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Applicant's or agent's file reference PCT0501KAIST	FOR FURTHER ACTION		See Form PCT/IPEA/416
International application No. PCT/KR2005/000346	International filing date(<i>day/month/year</i>) 04 FEBRUARY 2005 (04.02.2005)	Priority date (<i>day/month/year</i>) 12 FEBRUARY 2004 (12.02.2004)	
International Patent Classification (IPC) or national classification and IPC G03F 7/00(2006.01)i			
Applicant KOREA ADVANCED INSTITUTE OF SCIENCE AND TECHNOLOGY et al			

<p>1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.</p> <p>2. This REPORT consists of a total of <u>4</u> sheets, including this cover sheet.</p> <p>3. This report is also accompanied by ANNEXES, comprising:</p> <p>a. <input type="checkbox"/> (sent to the applicant and to the International Bureau) a total of _____ sheets, as follows:</p> <p><input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis for this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).</p> <p><input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.</p> <p>b. <input type="checkbox"/> (<i>sent to the International Bureau only</i>) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in electronic form only, as indicated in the Supplemental Box relating to Sequence Listing (see Section 802 of the Administrative Instructions).</p>	
<p>4. This report contains indications relating to the following items:</p> <p><input checked="" type="checkbox"/> Box No. I Basis of the report</p> <p><input type="checkbox"/> Box No. II Priority</p> <p><input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability</p> <p><input type="checkbox"/> Box No. IV Lack of unity of invention</p> <p><input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement</p> <p><input type="checkbox"/> Box No. VI Certain documents cited</p> <p><input type="checkbox"/> Box No. VII Certain defects in the international application</p> <p><input type="checkbox"/> Box No. VIII Certain observations on the international application</p>	

Date of submission of the demand 13 OCTOBER 2005 (13.10.2005)	Date of completion of this report 04 MAY 2006 (04.05.2006)
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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/KR2005/000346

Box No. I Basis of the report

1. With regard to the **language**, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.
 - ☒ This report is based on translations from the original language into the following language English, which is the language of a translation furnished for the purposes of:
 - ☐ international search (under Rules 12.3 and 23.1(b))
 - ☒ publication of the international application (under Rule 12.4)
 - ☐ international preliminary examination (under Rules 55.2 and/or 55.3)
2. With regard to the **elements** of the international application, this report is based on (*replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report*):
 - ☒ the international application as originally filed/furnished
 - ☐ the description:
 - pages _____ as originally filed/furnished
 - pages* _____ received by this Authority on _____
 - pages* _____ received by this Authority on _____
 - ☐ the claims:
 - pages _____ as originally filed/furnished
 - pages* _____ as amended (together with any statement) under Article 19
 - pages* _____ received by this Authority on _____
 - pages* _____ received by this Authority on _____
 - ☐ the drawings:
 - pages _____ as originally filed/furnished
 - pages* _____ received by this Authority on _____
 - pages* _____ received by this Authority on _____
 - ☐ the sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing.
3. ☐ The amendments have resulted in the cancellation of:
 - ☐ the description, pages _____
 - ☐ the claims, Nos. _____
 - ☐ the drawings, sheets _____
 - ☐ the sequence listing (*specify*): _____
 - ☐ any table(s) related to sequence listing (*specify*): _____
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
 - ☐ the description, pages _____
 - ☐ the claims, Nos. _____
 - ☐ the drawings, sheets _____
 - ☐ the sequence listing (*specify*): _____
 - ☐ any table(s) related to sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

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Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	<u>3-29</u>	<u>YES</u>
	Claims	<u>1, 2</u>	<u>NO</u>
Inventive step (IS)	Claims		<u>YES</u>
	Claims	<u>3-29</u>	<u>NO</u>
Industrial applicability (IA)	Claims	<u>1-29</u>	<u>YES</u>
	Claims		<u>NO</u>

2. Citations and explanations (Rule 70.7)

Reference is made to the following document:

D1: JP 2000-241607 A

1. Novelty

1) Concerning claim 1

Claim 1 of the present invention is concerned with polymer patterns having at least one pattern which is concave from the surface of the polymer patterns in a direction perpendicular to the substrate and extends in a direction parallel to the substrate, wherein the vertical cross-section of the concave pattern has at least one curved surface.

D1 relates to a microlens array and a forming method thereof wherein the concave pattern is formed on a substrate.

The fig. 4 of D1 shows polymer patterns having at least one pattern which is concave from the surface of the polymer patterns in a direction perpendicular to the substrate and extends in a direction parallel to the substrate, wherein the vertical cross-section of the concave pattern has at least one curved surface. Therefore, the subject matter of claim 1 does not seem to be novel(PCT Article 33(2)).

2) Concerning claim 2

D1 discloses that the vertical cross-section of the concave pattern has a circular or oval shape. Therefore, the subject matter of claim 1 does not seem to be novel(PCT Article 33(2)).

(Continued on Supplemental Sheet.)

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of:

Box V.

2. Inventive Step

1) Concerning claims 3 – 5

Even if claims 3–5 of the present invention define the arrangement of the polymer patterns, the kind of a polymer and the shape of the vertical cross-section of the concave pattern, these can be deduced from the cited prior art document without an inventive effort. Accordingly, the subject matter of claims 3–5 does not appear to involve an inventive step.

2) Concerning claims 6 and 7

Claims 6 and 7 relate to a method of forming the polymer patterns having the vertical cross-section of the concave pattern on a substrate. The polymer patterns having the concave pattern do not have the technical features which is particular in comparison with D1. And, the forming method of the present invention is well known in forming a pattern. Accordingly, the subject matter of claims 3–5 does not appear to involve an inventive step.

3) Concerning claims 8–29

Claims 8–29 relate to a metal film pattern, a metal pattern, a plastic mold using thereof, and a microlens array. Even if the present invention uses a metal instead of polymer for forming a pattern, this selection of the material can be easily made by a person skilled in the art and the method of forming a pattern, a plastic mold and a microlens array using thereof, can be easily invented by a person skilled in the art as well. Therefore, the subject matter of claims 8–29 does not appear to involve an inventive step.

The subject matter of claims 1–29 meets the criteria set out in PCT Article 33(4).